

VIKING LANDERS AND THE SURFACE OF MARS: K-12 EXERCISES; Henry J. Moore¹, James E. Tillman², and George F. LeCompte^{2,3}; ¹ U.S. Geological Survey, Menlo Park, CA 94025; ² University of Washington; Seattle, WA 98195; ³ Volunteer at Washington. moore@astmnl.wr.usgs.gov

Viking lander images, observations, and maps provide an educational resource for a part of the "Live from Mars" component of the University of Washington's "Live from Earth and Mars" program on the Internet. The goal of the Viking resource is to give students an intuitive "feeling" for the Martian surface by viewing surface features close-up. The goal is accomplished in five exercises that might be fun and instructive for young students.

In Exercise 1, students use maps of surface materials [1,2] and/or data files that list the coordinates and dimensions of large rocks to prepare reduced- or full-scale models of the Martian surface in front of one or both landers. The full-scale models could be used to test "rover" vehicles built by students.

In Exercise 2, students view images of two Viking lander footpads that illustrate the evidence for two different soillike materials on Mars [3]; simple experiments are suggested that students can perform to gain a feeling for the disparate strengths of the soillike materials.

In Exercise 3, students study images of a "surface bearing test" that illustrate the properties of a third Martian soillike material [3]; again, simple experiments suggested for students will give them an intuitive feel for the strength of the soillike material. A pair of stereoscopic images is included.

In Exercise 4, students identify a life-like rock in Viking lander images (named Mr. Toad, of Wind in the Willows fame) and, then, locate Mr. Toad on a map of the sample field [3] using elementary mapping techniques. The map includes a plan view of a Viking lander.

In Exercise 5, students observe high- and low-resolution Viking images to discover changes in the sample field caused by a wind storm [4,5] and locate features on a map that summarizes the status of the sample field at the end of the extended mission [3].

The URL for the k-12 exercises is:

<http://www-k12.atmos.washington.edu/k12/resources/>

References: [1] Moore and Keller, 1990, NASA TM 4210, p. 533-535. [2] Moore and Keller, 1991, NASA TM 4300, p. 160-162. [3] Moore and others, 1987, U.S. Geol. Survey Prof. Paper 1389, 222p. [4] Arvidson and others, 1983, Science, v. 222, p. 463-468. [5] Moore, 1985, Proc 16th Lunar Sci. Conf., J. Geophys. Res., v. 90, Suppl., p. D163-D174.